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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/620,708 07/20/00 ADAI

T Q60206

EXAMINER

IM22/1003
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CHILLI

ART UNIT

PAPER NUMBER

1752
DATE MAILED:

5
10/03/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/620,708

Applicant(s)

AOAI ET AL

Examiner

John S. Chu

Art Unit

1752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

This Office action is in response to the application filed June 20, 2000 and the IDS received November 28, 2000.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-25 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 1 recites that R₆ and R₇ is a group exclusive of hydrogen atom, yet this claimed feature is not supported by the specification as recited, see pages 98-113 wherein the groups defined for R₆ and R₇ include alkyl groups which have hydrogen atoms. Correction is necessary.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

4. Claims 1,2,6,8,10,18,19,23,25 are rejected under 35 U.S.C. 102(e) as being anticipated by HADA ET AL or AOAI ET AL.

The claimed invention is drawn to a positive photoresist composition comprising:

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(A) a compound capable of generating an acid upon irradiation with actinic rays or radiation and

(B) a resin capable of decomposing under the action of an acid to increase the solubility in alkali, containing a repeating unit having a group represented by formula (I).

Claim 9 recites the additional presence of a fluorine-containing and/or silicon-containing surfactant in the positive photoresist composition.

Claim 18 recites a specific solvent in the positive photoresist composition.

HADA ET AL discloses a positive working photoresist composition comprising an acrylic resin having unique monomeric units of the formula in the Abstract and an acid-generating compound. Applicants are directed to Preparation 6 and Example 4 in column 13 and column 15, respectively. This copolymer comprises a monomer II defined by the structure in column 12, lines 15-20 and a comonomer B defined in column 11, lines 50-60 which anticipates the formula (I) in claim 1.

AOAI ET AL discloses a positive working photoresist composition comprising an acid-generating compound and a terpolymer comprising a lactone containing monomer, an adamantyl containing monomer and methacrylic acid, see Example 29. The claims are anticipated by the example in AOAI ET AL.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1–25 are rejected under 35 U.S.C. 103(a) as being unpatentable over HADA ET AL and AOAI ET AL in combination.

The claimed invention has been recited above and is included by reference.

HADA ET AL has been recited for the copolymer in Example 4 which anticipates the claimed invention for certain claims as listed in paragraph 4 of the current Office action.

HADA ET AL lacks the claimed embodiments as recited in claim 3 for the substituent groups R₂₉, R₃₀ and R₃₁. HADA ET AL also lack the explicit use of amine compounds and fluorine containing surfactants in than example.

AOAI ET AL discloses a positive working photosensitive composition comprising an acid generating compound and a resins having alicyclic group including adamantyl groups. Applicants are directed to copolymers having monomeric groups defined as (a6), (a25), (a26), (a27), (a33), (a52), (a53) and (a54) in columns 13 – 25. These copolymers disclose an adamantyl group containing a carboxyl-substituted group and other groups, thus meeting the claimed scope in claim 3. The adamantyl groups having the substituted side groups are not explicitly disclosed in an example, however, are clearly taught as suitable copolymers in the photoresist compositions. AOAI ET AL further discloses the use of additive ingredients to include amine compounds and surfactants, see column 89, line 49 – column 90, line 68 for the amine compounds and column 92, lines 6-14 for the fluorine containing surfactant.

It would have been *prima facie* obvious to one of ordinary skill in the art of photoresist compositions to use additive components such as fluorine containing surfactants to improve coating properties and to add amines as acid diffusion inhibitors and reasonably expect photoresist compositions with excellent pattern profiles and pattern resolution.

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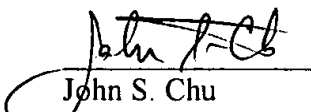
It also would have been *prima facie* obvious to one of ordinary skill in the art of photoresists to use the substituted adamantyl groups having carboxyl-containing substituents as seen in the monomer groups of as (a6), (a25), (a26), (a27), (a33), (a52), (a53) and (a54) and reasonably expect same or similar results with respect to excellent pattern profile and pattern resolution.

Motivation is based on the desire to have compositions with improved pattern formation improved storage stability and film thickness retention after development.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John S. Chu whose telephone number is (703) 308-2298. The examiner can normally be reached on M-F from 9:30 am to 6:00 pm.

The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3599.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


John S. Chu
Primary Examiner, Group 1700

J.Chu
September 28, 2001